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## APPARATUS AND METHOD FOR MANUFACTURING FIBER GRATINGS

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### ABSTRACT

5           In accordance with the apparatus and method of the present invention an optical  
fiber is heated and twisted to produce a periodic modulation of the dielectric constant  
along the fiber axis. This structure can be used in any application that utilizes Bragg  
grating optical fibers. A preform is drawn through a heater and the resulting optical fiber  
is twisted about its longitudinal axis. The refractive index modulation in the optical fiber  
10 arises from birefringence induced by stress in the optical fiber that is twisted after being  
subjected to an uneven heat distribution during the drawing process. The refractive index  
is modulated by drawing and twisting the optical fiber from a specially constructed  
preform which is non-cylindrically symmetrical.

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